

MANAGEMENT AND GOVERNMENT



Lecture delivered at the Indian Institute of
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on March 15, 1956

by

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(Text of a lecture delivered by Col. Lyndall F. Urwick, Vice-Chairman of the British Institute of Management, London, on March 15, 1956, under the auspices of the Indian Institute of Public Administration.)

Shri G.L. Bansal, Secretary-General, Federation of Indian Chambers of Commerce and Industry, presided. Shri Bansal, introducing the speaker, said :

I have great pleasure in welcoming today in our midst Col. Lyndau Urwick. As some of you may know, he is a leading Management Consultant. He was the Vice-Chairman of the British Institute of Management from 1948 to 1952. He was the Director of the International Institute of Management at Geneva from 1928 to 1933. He is here under the Colombo Plan to go round the country, advise the Government of India and other organizations concerned with the management work in this country, as to what scientific management is, its place in the country and what direction it should take. I am sure you are aware that in this country also this management movement is coming into its own. We have already in the country local management associations. A start was made with Bangalore. Then there is a management institute in Bombay; and we have one here in Delhi, too. The Government of India appointed a Sub-Committee about three years back and that Committee recommended the setting up of a Central Management Association. In due course of time the Regional Management Associations will be affiliated to the Central Association. We have also a programme for setting up a Central Institute of Business Management.

In all this context I am sure what Col. Urwick will tell us today will be of the greatest interest to us. Col. Urwick has already toured the country and he has addressed the Management Association of Delhi and a large number of similar bodies in other parts of India. He met some of us in Parliament and I am looking forward to listening to him again with the greatest interest.

Col. Urwick said :

Mr. Chairman, Ladies and Gentlemen :
My subject tonight is 'Management and Government'. The art of governing our human societies has been well described as "the endless adventure" (1). It is a challenge to human interest and the human spirit which has engaged the best abilities of the wisest and most far-seeing men throughout recorded history. No doubt it did so in those earlier times of which no records have come down on us. *The Republic* of Plato and *The Politics* of Aristotle are early milestones on the road which men have trod in building up the ideas and traditions which constitute our conceptions of this art in the twentieth century. Yet man in our day faces a crisis in his destiny of a kind which, as far as we know, has occurred only once before in the long human story. There was a time when man, who had been leading a nomadic life, discovered the possibilities of agriculture. Since the land had to be tended from season to season, he settled down and gradually built up established societies. This was a major change in the pattern of human culture—an adaptation of man's social and political ideas to accord with a revolution in his method of winning food and shelter from nature. It extended over more than a thousand years, years of war and confusion, of the rise and fall of peoples.

Nearly a quarter of a millennium ago, advances in the physical sciences which were released by the Renaissance—that revival of learning in Europe which

followed on the dark ages which succeeded the fall of Rome—started the second great cultural revolution in man's history. Application of discoveries about his material environment yielded the concept of power-driven machinery. Human energies were thus released from manual toil. Some proportion of the new wealth produced was poured, at times lavishly, into fresh enquiries in these fields of physical science. Thus, since the middle of the eighteenth century there has been an immense step forward in man's knowledge about and control over material things. The world has become, almost overnight, a parish. We live at the most within two or three days flying-time, within a few seconds' connection on radio telephone, from lands and their peoples which but yesterday were 'dark continents' and 'paynim folk'.

But, while this advance in our control over our environment has been immense, there has been no corresponding progress in man's knowledge of himself and of the political and social ideas necessary if he is to live on terms with the new and strange environment which he has created. Socially and politically new ideas only make their impact on established custom with the speed of water dropping on a stone.

That a more rapid adjustment is vitally necessary to us it is impossible to question. As Herbert Spencer observed more than a century ago, "socially as well as individually, organization is essential to growth; beyond a certain point there cannot be further growth without further organization." Without such further organization the new wine of unlimited material power and unhampered communications must burst the old bottles of a political and social structure founded on limited contacts between peoples and the local and national sectionalisms to which this separation has given rise. Men in moving from handicraft to power production and

modern communications laid upon their societies an imperative demand for adaptability, a demand which so far they have done little to meet.

The consequences are obvious.

If there was one characteristic of the 19th century man more marked than any other it was his determination to discover some parish pump in order to die with his back to it. He called this suicidal fixation 'patriotism' and elevated it into a major virtue. The results are there for all to see : two world wars within the lifetime of a single generation are merely symptomatic. They are the direct outcome of this unbalance in our knowledge, our immense and new-found control over material things unaccompanied by any similar advance in our knowledge of ourselves and the adjustments in our societies necessary if we are to adapt them to these new circumstances.

They were foreseen quite clearly by the Norwegian-American economist and sociologist — Thorstein Veblen :

"History records more frequent and more spectacular instances of the triumph of imbecile institutions over life and culture than of peoples who have, by the force of instinctive insight, saved themselves alive out of a desperately precarious institutional situation, such, for instance, as now faces the peoples of Christendom." (2)

Those sombre lines were written in March 1914.

My old friend the late Professor Mayo wrote after 1945 : "If our social skills (that is, our ability to secure co-operation between people) had advanced step by step with our technical skills, there would not have been another European War." (3)

In this desperate race between knowledge, new social insight, and utter disaster to which we are all

committed, India occupies a "key" position. For she has directed the new political freedom of a population nearly three times that of the United States of America to a planned development of the new technologies. That population includes a large percentage of illiterates and the great majority of those composing it have been dedicated from time immemorial to a traditional maintenance of agriculture and the handicraft skills typical of such an economy.

On, therefore, wisdom and insight of the educated minority responsible for the business of government and the government of business, will depend whether her tremendous experiment will issue in confusion or in a revolution in thinking which will enable her to take a place in the modern world worthy of her human resources and of her tremendous history.

It is, therefore, of the first moment that these two groups should understand each other and learn to work in mutual co-operation and agreement. Whatever ideological differences may tend to separate them are but a 'straw in the wind' in comparison with the immensity of the task on which they are mutually engaged. They are, collectively, a tiny minority. If the Second Five Year Plan is to be realized, it is not capital or machines, buildings or materials which will be the critical factor. It is trained men.

India will need every trained man she can produce. She must draw them from wherever she can find them. To waste them—and to argue-bargue about whether this or that activity should be in the public sector or should be in the private sector, is to waste them—should be pilloried as a crime against the nation. There is a vast job to be done and every true patriot should be mobilized in the doing of it.

If that is to occur, there must be an immense

increase and acceleration of study, both in the public sector and in the private sector, of a new field of human knowledge which has been developed within the present century. It is called Management or, to give its full title, Scientific Management.

I have said already that man has been slow in adapting his ideas—his social and political ideas—to the immense revolution in his control over material things which has been called the Industrial Revolution. But we speak of “the Industrial Revolution” as though it was over. It isn’t. It has been going on during the last 250 years and it is still going on—with increasing momentum, an accelerating tempo of technical change. We are in the middle of it : perhaps, we are only at the beginning of it.

Now, what is this Scientific Management? It is the beginning of an attempt to apply to the task of government, whether it be the governing of a business or the governing of an empire, the same kind of thinking which has produced this revolution in our command over material things, over our environment. That is scientific thinking—thinking which is objective and inductive in place of thinking which starts from some ideology—the modern name for a theory—and deduces its conclusions from that theory.

Why did it arise? What is its derivation? It arose primarily because in the last few years of the last century a small group of American engineers engaged in business, in the task of production, realized that the struggles between capital and labour, between workers and the management, were in fact reducing by an enormous percentage the productivity which the new machines made possible.

One of them, Frederick Winslow Taylor, an educated man trained as a machinist at Philadelphia was made the gang-boss, that is under-foreman or supervisor, of a group of men engaged in lathe work. He knew from his own experience as a lathe operator

that the work these men were producing was not even half or one-third of the output which they could do perfectly easily without any undue strain on men or machines. He was a young man and in his first attempts to improve efficiency he naturally followed the methods of management current at that time. He brought pressure on the operators to increase productivity : those who would not respond were fined or fired. The men took to threats, sabotage and smashing the machines by way of reprisal : there were more punishments, bitterness and hatred. This sort of thing went on for three years. Taylor was supported by the higher management and eventually won through. He got what he felt to be reasonable outputs. But the experience left him sick at heart. He was a friendly democratic type of fellow, with an extremely sensitive social conscience. As long as he had been a worker himself he had not felt it to be his duty to oppose the general social feeling of the shop with regard to levels of output. But when he was appointed a foreman he felt that his duty to the management compelled him to this struggle, to compel the men to do a reasonable day's work. The workers, however, had been his personal friends, men whom he called by their Christian names. He found the ostracism, the ill-feeling, the social upheaval which resulted from doing his duty unbearable.

He put his very keen mind to work on the problem and the conclusion he reached was that the root of the difficulty was that nobody *knew* what was "a fair day's work". The men were prepared to give "a fair day's work" for "a fair day's pay". The management was prepared to pay a "fair day's pay" for "a fair day's work". But the phrase "a fair day's work" was illusory : it meant different things to different people so no-one knew in any exact terms what it did mean.

He put a tarpaulin across a corner of the lathe

shop, found a lathe-operator who was fairly intelligent and was prepared to collaborate with him, bought a stop-watch and set to work to find out by the most detailed observation and measurement what was in fact "a fair day's work". This was the beginning of Scientific Management—an engineer, trained in physics and mathematics, trying to look at one of these problems, one of the social difficulties caused by the use of machinery, from a technical and scientific, *not* from a political, point of view.

For the last half a century this idea that Taylor started has been growing with extraordinary rapidity, not only in the United States but all over the world. More and more people are becoming convinced that this task of managing men is a scientific task about which we can build up a body of knowledge, some of it exact, some of it less exact but founded on the observation and analysis of experience. Many of those whose imaginations are seized by this idea have become extraordinarily enthusiastic about it. They find that it works.

It has four parts :

- (a) analyzing the tasks people are asked to do,
- (b) adjusting individuals to those tasks,
- (c) focussing the vast mass of human experience on the problem of arranging and correlating tasks, and
- (d) finally, adjusting the group to the group task thus determined under item (c). This includes such ideas as leadership, communication, participation and morale.

On these last topics again we have a vast body of accumulated experience : it may not be scientific in the sense that mathematics is an exact science, but it can be defined and analyzed, weighed and measured. We can precipitate principles which are much more reliable guides to action than the

politics and personalities of the passing hour. Thus we can build up a science, an organized body of knowledge, which will enable mankind to get the best out of power-driven machinery. Because in dealing with the men and women who man the machines we shall treat them scientifically and considerately as members of a social group, not merely as individual adjuncts to the machines.

Far the best parallel to this new body of knowledge is of course the body of knowledge which we call "medicine". As a truly scientific study it is about 400 years old. Management as a scientific study is only 50 years old. Of course, management has not gone so far as medicine, but in essentials they are extraordinarily alike.

Attending to the physical ills of human beings is an art. Managing a factory or an office is an art. But medicine is an art which for four centuries has been firmly based on a growing range of underlying sciences. The more skilled the doctor you meet the more quickly he will agree on the vast areas of ignorance which medicine has still to conquer. When he comes to an area in which he is ignorant he has to use his personal judgment. But, even then, he treats his patient as something to be approached objectively, with reverence for clinical experience, detached observation and exact measurement of facts. He will approach him as a 'case', with all the weapons which a man trained in the basic sciences learns to bring to bear upon a problem. Medicine is admittedly still short of much exact knowledge bearing on the art. No man will question that. But already it has done much to give service to the world in the relief of suffering and in the prolongation of human life.

Now, Management is the only other art besides medicine which can be based on a range of underlying sciences, which can be practised in the scientific

temper and spirit, and which yet, like medicine, is concerned all the time with human beings, the genus *Homo* so arrogantly classified *Sapiens*.

What does this mean with reference to the problem which is facing us, the problem of government? Why should I emphasize this new art of Scientific Management? For the very simple reason that management is concerned with getting things done, with the *executive* aspect of any system of human government. Hitherto our studies of government have paid little attention to this *executive* aspect of the problem. They have tended to concentrate on its constitutional and political aspects. If you take any examination in public administration today you will be asked to learn quite a lot about the constitution, and a good deal about parliamentary institutions and procedure. But you will be taught perilously little about how to get 200 typists or telephone linesmen to do a job of work. The *executive* aspect of government has been undersold and understudied. It has been a "distressed area" in the total disciplines which we call Political Science or Public Administration.

The fact that this new study of Management started in business does *not* mean that it is exclusively concerned with business. Far from it. It started in business for an obvious reason. Business employs many scientifically-trained people. It employed, for instance, engineers to look after the new machines. After a time these engineers came into contact with many business problems other than the purely technical problems which they faced as engineers. Naturally they thought about these problems in the spirit in which they have been trained: they thought about them scientifically. They tried to apply to them definition, analysis, measurement, experiment and proof—the mental tool-kit of the scientist. Some of them owned businesses.

They were forced to cross the heavily-defended frontier which at one time used to separate the production side of an industrial undertaking from the 'office' or commercial side. One engineer even joined with an accountant in writing a book on *Factory Accounts*. That was in 1890. It was one of the first books on management ever published in Great Britain (4). In those days for an engineer and an accountant to write a book together was not only a marriage between Montague and Capulet, it was a marriage which had a baby.

Now there is another frontier to be surmounted, this quite imaginary frontier in many people's minds between government or public administration and business management. It is just such another frontier as that between the engineer and the commercial man. And it is equally imaginary. Because, after all, in government today there is a vast amount of work which consists in getting things done; not in deciding what is to be done, but in getting things done *after* you have decided what is to be done. Indeed it is almost impossible to decide wisely what is to be done unless you have real knowledge as to how it is to be done. As I have said, we have hitherto very much underplayed this *executive* aspect of government.

Mr. David Lilienthal has written some wise words on this question of how things should be done. He speaks of "the tide of the public's demand that their government adopt the essentials of modern management" (5) and of how "the purpose for which developments are undertaken.....may be betrayed, as it has been betrayed before : by the way the job is done" (6). Decisions as to the way in which the job is to be done are just as important as decisions as to what the job is to be.

I feel personally that once we appreciate this distinction between the "political" and the *executive*

aspects of government, we should be able to go forward very much faster with raising the tempo of efficiency in government as it is being raised in some businesses today. In particular, we should realize that the decisions should be put in the right place, vertically. When you divide functions up and allocate them to people, it is necessary to spread those functions laterally; we all know perfectly well that if functions are not correctly defined and assigned laterally the engineers get mixed up with the accountants and the clerical force with the research people or the buyers; you have a muddled business. But, in just the same way, if functions are not correctly assigned vertically you have confusion between the duties of the staff and the duties of the managing director. Or, if the different levels of authority are not precisely drawn, you get waste, delay and frustration as a result.

Exactly the same principle applies to the machinery of government. If you do not draw the horizontal lines, dividing the authority and functions at different levels clearly and distinctly, you will get muddle, confusion, delay and frustration. That is the importance of this distinction between the political aspect of government which decides what is to be done, and the executive aspect of government which decides how it is to be done.

Now, the question of how it is to be done is today a technical and *not* a political question. I have heard much said since I have been in India about the participation of workers in the management. Of course, I agree with the demands of the workers that they should participate in the undertaking. If you were to ask me, "Do you believe that arrangements should be made to give the workers a greater sense of participation in the business enterprise", my answer is : "Of course". Unless people are allowed to feel that they are partners, participants, in any activity in which a group are engaged, whether it is business or

anything else, they cannot give of their best. They cannot develop enthusiasm. They cannot work together with real energy and vigour to realize the purpose of the group. A sense of participation in the enterprise is essential both to ensure adequate communication and to provide the drive which will enable things to get done. Methods of securing this feeling of partnership are as much a part of modern Scientific Management as are time study or motion analysis.

But, if I am asked : "Do you think workers should participate in the functions of management ?", my answer is : "No, that is nonsense". It is as if someone suggested that the captain of a ship, a man trained in navigation, should be required to call a committee of the crew together every time he wanted to change course.

If democracy means that posts requiring high technical skills should be filled through popular election by people who do not understand those skills or that technical issues should be subordinated to political considerations, then I believe that democracy in industry would be suicidal—just as suicidal as making high appointments in the Civil Service or the Army by popular election or subordinating legal or medical issues to political considerations.

Personally, I do not believe that democracy means this. Even assuming the right of every man to have a say in what affects him and pursuing the analogy of the ship, if a committee of the crew is to decide when to change course should it not also include representatives of the passengers and of the owners of the cargo? That is exactly the problem in business. Business exists to look after the passengers, consumers and their interests, and the businessmen, if I may say so, have a perfectly recognizable social function as trustees for the interests of consumers. It is their job to see that

business is run efficiently, so that consumers may be supplied with goods at the lowest possible prices. You cannot just scrap that social function. If you do you will find that those in charge of businesses will be solely concerned with the workers' interests as producers. That will create an impasse. The workers will lose on the swings as consumers every inch they gain on the roundabouts as producers and, perhaps, a bit more.

What is called "the industrial problem", the alleged conflict of interests between employers and employees exists in every country, not least in my own. It is not, as it is so often represented, a game of "cops and robbers" played out between "blood-sucking capitalists" on one side and "trade union agitators" on the other. It is a conflict inside every one of us between our interests as producers and our interests as consumers.

It is really a very simple problem when reduced to these elementary personal terms. Should I work longer hours and make more money or should I work less hard and have more leisure? When I am at work should I sweat at the job which, ultimately, if everyone does it, will make all goods cheaper for all consumers including myself, or should I take it easy and look after my own comfort as a producer? We have all got this personal conflict to face. It is our attempts to escape from it which have blown it up into this alleged permanent conflict of interests between employers and employees. Personally, I think it is merely an internal and personal conflict which we have not yet understood properly.

The businessman has assumed in the past that his social function of looking after the interests of everyone as consumers entitled him to neglect his particular employees as a social group, and only to regard them as individuals. I think he is now learning a lesson on that point. But if, because of the

faults and bad working of the past, the workers as producers insist on taking everything out of his hands, they will create a condition in which the needs of our democracies as consumers will be completely frustrated. Managing a business is today a highly technical job, just as technical a job as navigating a ship. And we cannot entrust a technical job of that kind to people who are not trained to carry it out, who are trained to win elections not to conduct a business enterprise.

Nor are members of government, whether they are servants of government, the salaried administrators, or are popular representatives elected by the people, specifically trained in management today. They are new to modern ideas about organization and methods. There would have to be a very substantial change and improvement in the content of training for public administration if they are to take on the job.

Also public servants are apt to feel that they have the full power of the community behind them to set off their obvious limitations as individuals. Of course, I am not attacking civil servants as such : we are all prone to similar illusions. There is a French phrase, *deformation professionnelle*, which comes to my mind in this connection. It is a phrase which is impossible to translate, but occupational paralysis of the cerebellum comes closest to the spirit of the original. We have all got these quirks which derive from the nature of our occupation. In the case of the permanent servants of the government they are sometimes led to think that because they represent the power of the community they are entitled to be inconsiderate for the feelings of those to whom they issue instructions, just as the businessmen thought that because they represented the interests of consumers they were entitled to ignore the social sentiments of their employees as producers. Actually in the case of the civil servants, the reverse

is the case. People are hyper-sensitive when they feel that the official with whom they are dealing has the full weight of the community behind him.

Secondly, the practice of Government within this century has been concerned essentially with the minimum interference necessary to preserve law and order. In consequence the whole climate and skill and tradition of Government have been regulatory and negative..... "You shall not do this". But, in the last twenty years, both in this country and in my own, things have changed completely. Government by entering the sphere of economic enterprise has placed on its shoulders a responsibility for initiative, for getting things done.

To quote David Lilienthal once more :

"The tradition and climate of the skill of management are remote from all such negation. Management is affirmative and initiative : 'This is to be done'. It is in the process of defining with skill and sense what is to be done, and with it the *fixing of responsibility* for results, with wide freedom for judgment in the managers as to how it may best be done, that you have the essence of the best modern management." (7)

If Government tries to conduct or to direct business enterprises in the memory of its older regulatory and negative tradition, it will unquestionably slow down the economic machinery of which it is in charge and fail to make it effective in serving consumers and the community.

My visit to India has involved me in so much lecturing that I have had little opportunity for research. But concerning the problem we are discussing tonight there is a classic. It comes out of the U.S.A., the home of free enterprise, the one country that does not believe in your policy here, where the

community through its Government is assuming the initiative in economic enterprise. Nevertheless this instance is the outstanding example in the world today of a public agency within a democracy taking on a job of economic initiative and administration and making a tremendous success of it. Moreover the man who did it has recorded how he did it in a book which examines particularly the changes necessary in the attitude of governments if they are to make a success of this particular kind of experiment. I have already quoted from the book twice: it is called "*T.V.A.—Democracy on the March*": it is written by David Lilienthal who was the second chairman of the Tennessee Valley Authority and who was responsible for the almost miraculous success of that undertaking.

John Gunther calculated for 9 states in the U.S.A. what they paid for electric current in 1943 and what they would have paid had TVA rates prevailed. The difference in favour of TVA rates was over 100 million dollars (8). Is it necessary to say more of the success of TVA as a business? How David Lilienthal acquired his amazing grasp of modern management principles I cannot tell you: he started life as a lawyer. But his book is a classic on what a Government should do and not do if it decides to run economic enterprises.

One very significant point is that his officers in Washington numbered only seven. He really decentralized. As he says "if the important tasks, the real responsibilities are kept at the center, men of stature will not got to the 'field'." (9) That means that the reality of government, the decisions that matter are kept remote from the people. Whatever the forms and the words, there is no true democracy. Because there is no direct experience of responsibility, no "sense of participation"—"the often flabby muscles of community and individual responsibility

will never be invigorated unless the muscles are given work to do. They grow strong by use; there is no other way.”(10)

The Authority had to deal with 90 agencies of local government ranging through counties, councils, parishes and so on. It had only *one* superior authority to which it could appeal—the President. It exercised that right of appeal once and once only. That was in the beginning when there was direct and irreconcilable conflict of view between the first Chairman and the other two Directors. The President removed the first Chairman and appointed David Lilienthal in his place.

There they are in one short volume costing a few rupees—all the basic principles which are applicable to the extremely complex and experimental task which India has undertaken so courageously during the last ten years. It is a task success in which is vital to her happiness and the welfare of her people, possibly to the survival of democracy in the world of today. I have mentioned Lilienthal's book to almost everyone with whom I have talked in India. The majority have replied brightly, if somewhat vaguely, “Oh, yes, the TVA”. For the last three weeks, not having a copy of the book with me, I have been trying to beg, buy, borrow or steal one in New Delhi or elsewhere. I have failed. I do not wish to appear critical. But I suggest that the best thing that the Ford Foundation or anybody else who is interested in this country and its future could do, would be to import 50,000 copies of *T.V.A.—Democracy on the March* and to persuade your Government to make it compulsory reading for every individual—be he politician or civil servant, business man or trade union leader—who has any part to play in your Second Five Year Plan. Because it has got the whole story of how principles of modern Management, Scientific Management, can be applied to such an experiment.

Above all, it emphasizes the importance of giving managers real responsibility for the conduct of the enterprises which are entrusted to them, of freeing them from niggling interference and of keeping their technical tasks completely insulated from politics.

“Once politics enters, the entire edifice of an enterprise built upon expert skills becomes unsafe. The whole enterprise would be infected by half-technical, half-political judgments. Public confidence in its integrity would soon fade..... There are all kinds of politics; administrators and experts must see to it that they keep out of all varieties.” (11)

Our World has no future unless we solve this problem of how to introduce the modern techniques of Management into government. We have got to do it despite traditions and habits founded on the negative functions of governments in the past—“thou shalt not do this”. All Management is founded on the affirmative—“this is to be done.”

I believe that this new attitude, this “complete mental revolution” (12)—this thinking about business or government or any other form of human organization as a scientific problem—offers the best hope that mankind will make headway against the manifold dangers and difficulties which beat upon our “proud and angry dust” in this mid-twentieth century.

I see in it the “cloud, no bigger than a man’s hand”, the first faint indication of such a change of heart in our societies, as will enable us to deal with the crisis through which we are living. That crisis is due to the fact that our technological mastery is completely out of balance with our social capacity, our ability to adapt our institutions to technical change. The strains imposed by this unbalance in

our knowledge are steadily undermining our capacity to co-operate with each other.

No man can study Management without becoming deeply interested in his business or whatever group he works, with as a social institution, as a society in miniature. These small societies are our proving ground. Within them we may learn how to meet man's demands for social well-being without loss of adequate economic production. So I think we shall learn the larger lesson, how to adapt our local and central governments, our national life and our international relations to this new world we have created in which frontiers are an anachronism and we are all citizens of the same parish. Of one thing we may be certain. Since we are perforce near neighbours we must be good neighbours. If we cannot learn to live together we shall indubitably perish together.



NOTES

- (1) cf. F.S. Oliver—*The Endless Adventure*, London, Macmillan & Co., 1931.
- (2) Thorstein Veblen—*The Instinct of Workmanship*, p. 24.
- (3) Elton Mayo—*The Social Problems of an Industrial Civilization*, Boston, Division of Research, Graduate School of Business Administration, 1945, p.33.
- (4) Garcke and Fells—*Factory Accounts*, London, Crosby Lockwood & Sons, 1887.
- (5) David E. Lilienthal—*T.V.A.—Democracy on the March*, Penguin Books, London, 1944, p.153.
- (6) Ibid., p.58
- (7) Ibid., p.146.

- (8) John Gunther—*Inside U.S.A.*, London, Hamish Hamilton, 1st Edn. p.185.
 - (9) Lilienthal, *Ibid.*, pp.128, 9.
 - (10) *Ibid.*, p.130.
 - (11) *Ibid.*, pp. 158,159.
 - (12) F. W. Taylor—*Scientific Management*, New York, Harper & Bros., 1947, "Testimony", p. 27. "Now, in its essence, scientific management involves a complete mental revolution on the part of the workingman engaged in any particular establishment or industry.....And it involves the equally complete mental revolution on the part of those on the management's side... And without this equally complete mental revolution on both sides scientific management does not exist."
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M.A., Oxford.

Fellow of the Institute of Industrial Administration.

Fellow of the Royal Society of Arts.

Companion of the Institution of Mechanical Engineers.

Member of the Institution of Production Engineers.

Past Master, The Worshipful Company of Glovers of London.

Chairman, Urwick Orr & Partners Ltd., London, from 1934 to date.

Honorary Secretary, Management Research Groups, 1926-8.

Director, International Management Institute, 1928-33.

Honorary Secretary, International Committee for Scientific Management, (CIOS) 1932-5.

Consultant in Organisation to H.M. Treasury, 1940-2 ;

Member of the Mitcheson Committee on the Ministry of Pensions, 1941-2.

Member of the Formative Committee for the Administrative Staff College, 1942-4.

Chairman, Education Committee, Institute of Industrial Administration, 1944-8.

Member, British Management Council, and Chairman, Education Committee, 1944-8.

Chairman, Ministry of Education Committee on "Education for Management", 1945-7.

Founder Member, British Institute of Management and Vice-Chairman of Council, 1947-52.

Chairman, Anglo-American Productivity Team on "Education for Management", 1951.

Visiting Professor, Department of Business Administration, Toronto University, 1951.

Director, American Management Association's Enquiry into Management Development, 1952-3.

Regent's Lecturer, University of California, 1953.

Merrill Foundation Lecturer, University of Minnesota, 1955.

Honoris Causa

Knight, 1st. cl., The Order of St. Olaf of Norway.

Silver Medal, The Paris Chamber of Commerce.

Silver Medal, The Royal Society of Arts.

Honorary Associate, The Manchester College of Technology.

Honorary Associate, The Birmingham Central Technical College.

Honorary Life Member, The American Society of Mechanical Engineers.

Gold Medal, The International Committee for Scientific Management (CIOS).

Wallace Clark International Management Medal.

